



Claims

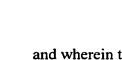
- A multi-phase detergent tablet for use in a washing machine, the tablet comprising a first phase comprising alkalising agent, and a second phase comprising acidifying agent, and wherein the multi-phase tablet has an initial pH of at least 9, preferably at least 9.5 and a pH rate change index (ΔpH) of no more than about 0.17 preferably no more than about 0.15 units/min.
 - 2. A multi-phase detergent tablet for use in a washing machine, the tablet comprising a) a first phase comprising silicate alkalising agent including at least a crystalline layered sodium silicate of general formula I

$$NaMSi_{x}O_{2x+1}$$
.yH₂O I

- wherein M is sodium or hydrogen, x is a number from 1.9 to 22, preferably from 1.9 to 4 and y is a number from 0 to 30 preferably from 0 to 20, and b) a second phase comprising a (bi)carbonate/acid disrupting agent, and wherein the multi-phase tablet has an initial pH of at least 9, preferably at least 9.5 and a pH rate change index (ΔpH) of no more than about 0.17 units/min, preferably no-more than about 0.13 units/min.
- 3. A multi-phase detergent tablet according to claim 1 or 2 containing silicate alkalising agent and acid in a weight ratio of at least about 1:1, preferably at least about 5:1; and more preferably in the range from about 8:1 to about 25:1.
- 4. A multi-phase detergent tablet for use in a washing machine, the tablet comprising a) a first phase comprising silicate alkalising agent including at least a crystalline layered sodium silicate of general formula I

$$NaMSi_{x}O_{2x+1}$$
 .yH₂O I

wherein M is sodium or hydrogen, x is a number from 1.9 to 22 preferably from 1.9 to 4 and y is a number from 0 to 30 preferably from 0 to 20, and b) a second phase comprising a (bi)carbonate/acid disrupting agent,



a

and wherein the tablet contains silicate alkalising agent and acid in a weight ratio of at least about 1:1 preferably at least about 5:1.

- 5. A multi-phase detergent tablet according to any of claims 1 to 4 wherein the silicate alkalising agent comprises at least about 25%, preferably at least about 50% and more preferably at least about 75% by weight thereof of the crystalline layered sodium silicate of general formula I.
- 6. A multi-phase detergent tablet according to any of claims 1 to 5 comprising from about 1% to about 25%, preferably from about 5% to about 20%, more preferably from about 8% to about 18% of silicate alkalising agent by weight of the tablet.
- 7. A multi-phase detergent tablet according to any of claims 1 to 6 comprising from about 0.1% to about 10%, preferably from about 0.5% to about 5%, more preferably from about 0.8% to about 3% of acid by weight of the tablet.

8. A multi-phase detergent tablet according to any of claims 1 to 7 wherein the first phase is composed of a built active detergent composition comprising by weight thereof:

(1) from about 1% to about 12%, preferably from about 5% to about 10% of the crystalline layered sodium silicate of general formula I,

- (2) from 0% to about 70%, preferably from about 10% to about 60% of polyphosphate, zeolite, and/or polycarboxylate builders,
- (3) from 0% to about 30%, preferably from about 5% to about 20% of carbonate and/or bicarbonate, and
- (4) from 0% to about 10%, preferably from 0% to about 5% of amorphous silicate.
- 9. A multi-phase detergent tablet according to any of claims 1 to 8 wherein the second phase dissolves in a washing machine within 5 minutes.
- (CBS) of at least about 10 kg, preferably at least about 14 kg.
- 11. A multi-phase detergent tablet according to any of claims 1 to 10 wherein the first phase is in the form of a shaped body formed by compression at a pressure greater than that of the second phase.

claim 1,2024

12. A multi-phase detergent tablet according to any of claims 1 to 14 wherein the second phase is compressed at a pressure of less than about 350 kg/cm².

13. A multi-phase detergent tablet according to any of claims 1 to 12 wherein the first phase is compressed at a pressure of at least about 350 kg/cm².

14. A multi-phase detergent tablet according to any of claims 1 to 13 wherein a) the first phase is in the form of a shaped body having at least one mould therein; and

b) the second phase is in the form of a particulate solid compressed within said mould.

15. A multi-phase detergent tablet according to any of claims 1 to 14 wherein the first and/or second phases additionally comprises a binder selected from the group consisting of sugar and sugar derivatives, starch and starch derivatives, inorganic and organic polymers.